

## **ROLL GOODS DISPENSER SYSTEM AND METHODS OF USE**

### **Field of the Invention**

The present invention is directed to a roll goods dispenser system, and more particularly to a two-piece roll goods dispenser system for a roll of  
5 manually tearable tape.

### **Background**

The art is replete with different types of tape rolls designed for a multitude of uses. One type of tape is known in the art as medical tape. As used  
10 herein, the phrase "medical tape" means a tape that is designed for use in the health care field. Examples of medical tapes include a) TRANSPORE Surgical Tape that is a transparent, easy-to-tear, perforated plastic tape for securing dressings or devices, b) MICROPORE Surgical Tape that is a gentle, general purpose paper tape, c) DURAPORE Surgical Tape that is a cloth tape with  
15 strong adhesion for securing dressings or devices, d) MICROFOAM Surgical Tape that is a highly conformable elastic foam tape for compression applications or securing dressings on difficult or challenging areas, and e) BLENDERM Surgical Tape that is an occlusive, transparent plastic tape that protects wounds from fluids and contaminants. Each of these particular examples of medical  
20 tapes is available from Minnesota Mining and Manufacturing Co. (3M) of St. Paul, Minn.

A number of problems are associated with the use of a roll of tape. It may be difficult or inconvenient to locate a leading end portion of a tape. This is particularly a problem for rolls of medical tape that should be kept as clean as  
25 possible. The leading end portion of the tape is often wasted when a user elects to simply dispose of the exposed leading end portion in favor of a more pristine portion of the tape. Exposed adhesive along the leading end portion and adhesive along the sides of the tape tend to stick to clothing or other surfaces that may contaminate the surface and make use of a tape roll inconvenient.

30 Another problem associated with the use of a roll of tape is that some tape rolls may become easily damaged or altered. It is generally desirable to protect the tape roll (particularly the edges) from scuffs, mars, indentations, or

other deformations as such deformations may adversely affect the performance of the tape.

Dispensers have been developed over the years to address the problems associated with the use of tape rolls. Many of these dispensers are complex,  
5 relatively expensive devices that can be difficult to manufacture.

Further, the art is replete with tape roll dispensers or other devices that include serrations, teeth, blades, tearing edges, or other cutting devices designed to help separate a leading end portion of a roll of tape from the remaining tape on the roll.

10 For a roll of manual or hand tearable tape, a cutting device may be unnecessary. A dispenser with a cutting device may also be undesirable in some situations. Cutting devices have the potential to scratch or otherwise damage surfaces (e.g., clothing). Cutting devices may also cause the dispenser to snag on surfaces, which may reduce the convenience for the user. Generally, cutting  
15 devices also add cost to the dispenser and complicate the manufacturing process.

### **Summary of the Invention**

The present invention provides a roll goods dispenser system. The present invention also provides methods of using the roll goods dispenser  
20 system. The dispenser system includes a dispenser guard that protects roll goods from damage.

Among the advantages provided by the present invention is the ability to protect roll goods, e.g., tapes, from dirt and damage. Because of its larger shape, the invention may also make it easier to locate roll goods. Use of the invention  
25 may also be encouraged because of its appealing, tactile feel. Further, the invention enables a user to place roll goods in the user's pocket without contaminating the roll goods with dirt, lint, etc. Also, roll goods may be protected from damage that would normally be caused by impacts between the roll and other objects, e.g., accidentally dropping the roll goods.

30 In one aspect, the present invention provides a roll goods dispenser system that includes a roll of continuous length product with opposing first and second side surfaces defining a roll diameter and a core defining a central void

within the roll; a first dispenser guard including a retaining plug protruding from a side shield, wherein the side shield covers the entire first side surface of the roll when the retaining plug is located within the central void, wherein the side shield is movable between a closed configuration and an open configuration, wherein  
5 the side shield in the closed configuration forms a concave shape facing the roll, the concave shape defining a volume, wherein the roll occupies at least a portion of the volume, and further wherein the side shield in the open configuration forms a convex shape facing the roll.

In another aspect, the present invention provides a roll goods dispenser  
10 system including a roll of continuous length product including opposing first and second side surfaces defining a roll diameter and a core defining a central void within the roll; and a first dispenser guard including a first retaining plug protruding from a first side shield, wherein the first side shield covers the first  
15 side surface of the roll when the first retaining plug is located within the central void, wherein the first side shield is movable between a closed configuration and an open configuration, wherein the first side shield forms a concave shape facing the first side surface of the roll when in the closed configuration, the concave shape defining a volume, and further wherein the roll occupies at least a portion of the volume. This aspect of the present invention further provides a second  
20 dispenser guard including a second retaining plug protruding from a second side shield, wherein the second side shield covers the second side surface of the roll when the second retaining plug is located within the central void, wherein the second side shield is movable between a closed configuration and an open configuration, wherein the second side shield forms a concave shape facing the  
25 second side surface of the roll when in the closed configuration, the concave shape defining a volume, and further wherein the roll occupies at least a portion of the volume.

In another aspect, the present invention provides a method of dispensing continuous length product from a roll by providing a roll of continuous length  
30 product including first and second side surfaces defining a roll diameter and a core defining a central void within the roll. The method further includes providing a first dispenser guard including a retaining plug protruding from a

side shield, the retaining plug being located within the central void of the roll, wherein the side shield covers the entire first side surface of the roll, wherein the side shield is movable between a closed configuration and an open configuration, wherein the side shield forms a concave shape facing the roll when in the closed configuration, the concave shape defining a volume and the roll occupying at least a portion of the volume, and further wherein the side shield forms a convex shape facing the roll when in the open configuration. The method further includes moving the side shield from the closed configuration to the open configuration; unrolling a selected portion of the continuous length product from the roll; and separating the selected portion of the continuous length product from the roll.

In another aspect, the present invention provides a method of dispensing continuous length product from a roll by providing a roll of continuous length product including opposing first and second side surfaces defining a roll diameter and a core defining a central void within the roll. The method further includes providing a first dispenser guard including a first retaining plug protruding from a first side shield, wherein the first side shield covers the first side surface of the roll when the first retaining plug is located within the central void, wherein the first side shield is movable between a closed configuration and an open configuration, wherein the first side shield forms a concave shape facing the first side surface of the roll when in the closed configuration, the concave shape defining a volume, and further wherein the roll occupies at least a portion of the volume. The method further includes providing a second dispenser guard including a second retaining plug protruding from a second side shield, wherein the second side shield covers the second side surface of the roll when the second retaining plug is located within the central void, wherein the second side shield is movable between a closed configuration and an open configuration, wherein the second side shield forms a concave shape facing the second side surface of the roll when in the closed configuration, the concave shape defining a volume, and further wherein the roll occupies at least a portion of the volume. The method further includes moving the first side shield from the closed configuration to the open configuration; moving the second side shield from the closed configuration

to the open configuration; unrolling a selected portion of the continuous length product from the roll; and separating the selected portion of the continuous length product from the roll.

These and other features and advantages of the devices and methods of the present invention may be discussed in more detail below in connection with various illustrative embodiments of the invention.

### **Brief Description Of The Drawings**

Figure 1 is a perspective view of one dispenser system according to the present invention.

Figure 2 is a perspective view of the dispenser system of Figure 1 in the open configuration, wherein the roll of continuous length material is removed.

Figure 3 is a cross-sectional view of the dispenser system of Figure 1 taken along line 3-3 in Figure 1.

Figure 4 is a cross-sectional view of another dispenser system according to the present invention.

### **Detailed Description of Illustrative Embodiments of the Invention**

Figures 1-3 depict one illustrative embodiment of a roll goods dispenser system according to the present invention. The roll goods dispenser system may include a first dispenser guard 20 and a second dispenser guard 30, and a roll of continuous length product 50 that includes continuous length product 51, opposing first and second side surfaces 52 and 54 that define a roll diameter, and a core 56 that defines a central void 58 within the roll 50.

The continuous length product 51 may include any suitable material such as, e.g., medical tapes, electrical tapes, hand tearable tapes, duct tapes, cloth tapes, correction/cover-up tapes, masking tapes, and paper tapes. The continuous length product 51 may preferably be a tearable medical tape, such as TRANSPORE Surgical Tape, MICROPORE Surgical Tape, DURAPORE Surgical Tape, MICROFOAM Surgical Tape, MEDIPORE Surgical Tape, and BLENDERM Surgical Tape, each of which is available from Minnesota Mining and Manufacturing Co. (3M) of St. Paul, Minn. As used herein, the phrases

“hand tearable tape” or “manually tearable tape” mean a tape that may be separated or torn apart without scissors, knives, or other devices by a person of ordinary strength and coordination. A variety of factors may render a tape manually or hand tearable. For example, the tape backing may be constructed from a readily tearable material such as paper, cloth, or a nonwoven material such as rayon. Perforations, edge geometries, or other alterations of the tape backing may also render the tape manually or hand tearable.

The continuous length product 51 may be wound around a core 56. The core 56 defines a central void 58 within the roll. The core may be manufactured using any suitable material, including paper, metal, polymers, etc.

The first and second dispenser guards 20 and 30 include side shields 22 and 32 respectively. The side shields may be made of any suitable material, including SANTOPRENE, made by Advanced Elastomer Systems, L.P. of Akron, OH; rubber; ULTRATHANE UE 630 Nat., made by Futura Coatings, Inc. of St. Louis, MO; DOWLEX 2517 Nat., made by Dow Chemical Co. of Midland, MI; SARLINK 3180 Nat., made by DSM Thermoplastic Elastomers, Inc. of Leominster, MA; and urethane. The side shields preferably cover the entire first and second sides 52 and 54 of the roll of continuous length product 50.

Although Figures 1-3 depict both a first and a second dispenser guard, 20 and 30 respectively, an alternative embodiment may include only a first dispenser guard that may preferably cover the entire first side 52 of the roll of continuous length product 50 while leaving the opposite side of the roll so exposed. This embodiment may be preferable for tapes that have adhesive on only one half of the tape backing, e.g., certain masking tapes. Such tapes may not require protection on more than one side of the roll because the side lacking adhesive would not tend to attract dirt and other foreign matter.

It may be preferred that the side shields 22 and 32 are movable between a closed configuration and an open configuration. Figures 1 and 3 depict the side shields in a closed configuration, and Figure 2 depicts the side shields in an open configuration. When in a closed configuration, the side shields 22 and 32 form concave shapes that face the roll 50. The concave shapes of the side shields 22

and 32 define an enclosed volume 12, wherein the roll occupies at least a portion of the volume (*see* Figure 3). In the open configuration, the side shields 22 and 32 form a convex shape facing the roll 50 (*see* Figure 2). The side shields 22 and 32 may be biased in either the closed or open configuration, whereby a force is required to move the side shields 22 and 32 between the open configuration and the closed configuration.

The first and second dispenser guards 20 and 30 further include retaining plugs 24 and 34, which protrude from the side shields 22 and 32. The retaining plugs 24 and 34 may be located within the central void 58 of the core 56 of roll 50. None, one, or both of the retaining plugs 24 and 34 may be friction fit within the core 56. As used herein, the phrase “friction fit” means that the retaining plugs 24 and 34 have an outside circumference that is slightly larger than the inside circumference of the core 56, such that friction is generated when any friction fit retaining plugs are inserted within the void 58 of core 56. Also, the retaining plug 24 of the first dispenser guard 20 may be attached to the retaining plug 34 of the second dispenser guard 30 when the dispenser 10 is assembled.

Although depicted as round, the core 56 and/or retaining plugs 24 and 34 could be any complementary shape, such as, e.g., triangular, square, hexagonal, octagonal, etc. The shapes of the void 58 and retaining plugs 24 and 34 may be the same or different. For example, the central void 58 may be circular while the retaining plugs 24 and 34 are, e.g., hexagonal or some other shape that can be friction fit within the void 58.

The retaining plugs 24 and 34 may be manufactured by any suitable technique. For example, it may be desirable to manufacture the plugs from a molded polymeric material. The plugs 24 and 34 may be molded as a part of the side shields 22 and 32 so that a side shield and plug form one continuous, completely integral, piece. Alternatively, the plugs 24 and 34 may be separate pieces that are attached to the side shields 22 and 32. Any suitable technique may be utilized to attach the plugs 24 and 34 to the side shields 22 and 32, e.g., adhesives, mechanical fasteners, chemical or thermal welding, ultrasonic energy, etc. Further, the retaining plugs may be friction fit into holes in the side shields.

In the embodiment depicted in Figures 1-3, the side shields 22 and 32 are insert molded with the retaining plugs 24 and 34.

Preferably, the core 56 is separate and distinct from the dispenser guards 20 and 30. In other words, the continuous length product 51 is wound onto the core 56, not onto the retaining plugs 24 and 34. Further, the dispenser guards 20 and 30, along with retaining plugs 24 and 34, may be removed from the core 56 and reused if desired.

Figure 4 depicts another embodiment of a roll goods dispensing system according to the present invention. In many respects, the dispensing system 110 is similar to the dispensing system 10 of Figures 1-3. The dispensing system 110 includes a first dispenser guard 120 and a second dispenser guard 130, a roll of continuous length product 150 that includes continuous length product 151, opposing first and second side surfaces 152 and 154 that define a roll diameter, and a core 156 that defines a central void 158 within the roll 150. It also includes retaining plugs 124 and 134 that protrude from side shields 122 and 124. The side shields may cover the entire first and second side surfaces 152 and 154 of the roll 150.

Among the differences between the dispensing system 110 and 10 is the shape of the side shield 122 of the first dispenser guard 120, which is of a generally planar shape. The second dispenser guard 130 includes a side shield 132 that may be moved between an open and closed configuration, as was the case with dispensing system 10. When closed, the side shield 132 forms a concave shape facing the roll 150. In the open configuration, the side shield 132 forms a convex shape facing the roll 150. The first and second dispenser guards 120 and 130 may preferably form an enclosed volume 112 when the second dispenser guard's side shield 132 is in the closed position.

The present invention also may be viewed as a method of dispensing continuous length product from a roll. In reference to the embodiment depicted in Figures 1-3, the roll goods dispenser system 10 is placed in the open configuration by moving the side shields 22 and 32 from their closed configurations (*see* Figure 1) by exerting a force on the side shields. Placing the system 10 in the open configuration (*see* Figure 2) may include exerting a force



on side shield 22 first, followed by exerting a force on side shield 32; or a force may be exerted on both side shields 22 and 32 simultaneously.

5 A selected portion of the continuous length product 51 may then be unrolled from the roll 50. The selected portion of the continuous length product 51 is then separated from the roll. Separation may include hand tearing or cutting with scissors, knives, or other such devices. The side shields may then be returned to the closed configuration by closing the first side shield 22 followed by the second side shield 32, or both side shields may be closed simultaneously. In some instances, the side shields 22 and 32 may be closed by first placing the roll goods dispenser system 10 on a flat surface with side shield 22 laid flat on the surface, and then exerting a force on the side shield 32 such that the force returns the side shield 32 directly to the closed position, and returns the side shield 22 to the closed position by compressing the system 10 against the flat surface.

10 15 The dispenser system of Figure 4 may be used in a similar method, although only side shield 132 must be manipulated between the open and closed configurations.

20 Illustrative embodiments of this invention are discussed and reference has been made to possible variations within the scope of this invention. These and other variations and modifications in the invention will be apparent to those skilled in the art without departing from the scope of this invention, and it should be understood that this invention is not limited to the illustrative embodiments set forth herein. Accordingly, the invention is to be limited only by the claims provided below.

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